IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: Jeng H. Hwang et al.

SERIAL NO.: Not yet assigned

FILED: June 29, 2001

FOR: METHOD FOR ALLOWING A STABLE POWER TRANSMISSION INTO A PLASMA PROCESSING CHAMBER

§ GROUP ART UNIT:
§ Not yet assigned
§
§ EXAMINER: Not yet assigned
§
§
§
§ Attorney Docket No.:
§ AM-2090P1.C1/2090.C2

Date: June 29, 2001

PRELIMINARY AMENDMENT "A"

Hon. Commissioner for Patents
Washington, DC 20231

Sir:

This Preliminary Amendment "A" accompanies a continuation application of U.S. Application Serial No. 09/124,291, filed July 29, 1998.

CERTIFICATE OF MAILING UNDER 37 CFR 1.10

I hereby certify that this paper and any documents said to accompany this paper are being deposited with the U.S. Postal Service on the date shown below with sufficient postage as U.S. EXPRESS MAIL NO. ET160381255US in an envelope addressed to the: Commissioner for Patents, Box Patent Application, Washington DC 20231.

Date: June 29, 2001

Shirley L. Church

Shirley L. Church, Reg. No.31,858

Please amend the application as follows:

IN THE SPECIFICATION:

Please replace the paragraph at page 1, lines 9 - 11, with the following rewriten paragraph:

-- This application is a continuation of Application Serial No. 09/124,291, filed July 29, 1998, which is currently pending, which is a continuation-in-part of Application Serial No. 08/920,283, filed August 26, 1997, which is abandoned. --

Please replace the paragraph at page 19, line 26, through page 20, line 8, with the following rewritten paragraph:

-- The liner assembly 11 and assembly 4 including the brace members 9 and the deposition support members 8 may be manufactured from any suitable material, such as metal, plastic, electrically non-conductive materials, etc. Preferably, the liner assembly 11 and brace members 9 comprise any substance or material that has an extremely low dielectric constant or low thermal conductivity, or both. The liner assembly 11 and brace members 9 are preferably essentially non-conductive and may consist of a wide variety of solid types of non-conductive material such as porcelains, glass, mica, magnesia, alumina, aluminum silicate, various high polymers (e.g., epoxies, polyethylene, polystyrene, PVC, phenolics, etc.), cellulosic materials, cellular rubber, nylon, and silicon resins. These low dielectric constant materials may be used alone or in combination with other insulators. The deposition support members 8 are preferably manufactured form a semiconductive material or an electrically conductive material. Suitable semiconductive materials include germanium, silicon, silicon carbide, and selenium, etc., with resistivities in the range of 10^{-2} to 10^{9} ohms/cm. Suitable electrically conductive materials include metals (e.g., aluminum, copper, platinum, etc.) and alloys, carbon and graphite, etc. --

Please replace the paragraph at page 25, line 19, through page 26, line 32, with the following rewritten paragraph:

-- A preferred inductively coupled plasma reactor for employing a plurality of the assemblies 4 of the present invention is that which inductively couples a plasma in a decoupled plasma source etch chamber sold under the trademark DPS™ owned by Applied Materials, Inc., 3050 Bowers Avenue, Santa Clara, California 95054-3299. The DPS™ brand etch chamber decouples or separates the ion flux to the semiconductor wafer 13 form the ion acceleration energy and may be any of the DPS™ brand etch chambers of the inductively coupled plasma reactors disclosed in U.S. Patent No. 5,753,044, entitled "RF PLASMA REACTOR WITH HYBRID CONDUCTOR AND MULTI-RADIUS DOME CEILING" and assigned to the present assignee and fully incorporated herein by reference thereto as if repeated verbatim immediately hereinafter. Referring now to Figs. 12 and 13 for two (2) embodiments of an inductively coupled plasma reactor, generally illustrated as 100, having a reactor chamber, generally illustrated as 102, wherein a high density plasma of neutral (n) particles, positive (+) particles, and negative (-) particles are found. The reactor chamber 102 has a grounded conductive cylindrical sidewall 108 and a dielectric ceiling or window 110. A plurality of the assemblies 4 of the present invention may be secured to an inside surface of the dielectric ceiling 110 as best shown in Fig. 14. The inductively coupled RF plasma reactor 100 further comprises a wafer pedestal 114 for supporting the (semiconductor) wafer 13 in the center of the chamber 102, a cylindrical inductor coil 120 surrounding an upper portion of the chamber 102 beginning near the plane of the top of the wafer 13 or wafer pedestal 114 and extending upwardly therefrom toward the top of the chamber 102, an etching gas source 124 and gas inlet 128 for furnishing an etching gas into the interior of the chamber 102, and a pump 132 for controlling the pressure in the chamber 102. The coil inductor 120 is energized by a plasma source power supply or RF generator 136 through a conventional active RF match network 140, the top winding of the coil inductor 120 being "hot" and the bottom winding being grounded. The wafer pedestal 114

includes an interior conductive portion 144 connected to the bias RF power supply or generator 148 and an exterior grounded conductor 152 (insulated from the interior conductive portion 144). Thus, the plasma source power applied to the coil inductor 120 by the RF generator 136 and the DC bias RF power applied to the wafer pedestal 114 by generator 148 are separately controlled RF supplies. Separating the bias and source power supplies facilitates independent control of ion density and ion energy, in accordance with well-known techniques. To produce high density plasma 104 as an inductively coupled plasma, the coil inductor 120 is adjacent to the chamber 102 and is connected to the RF source power supply or the RF generator 136. The coil inductor 120 provides the RF power through the dielectric ceiling or window 110 which ignites and sustains the high ion density of the high density plasma 104. The geometry of the coil inductor 120 can in large part determine spatial distribution of the plasma ion density of the high density plasma 104 within the reactor chamber 102. The assemblies 4 allow stable power transmission to pass through the dielectric ceiling 110 and into the chamber 102 since the assemblies 4 would receive the deposit 7 of material and keep the inside surface of the dielectric ceiling 110 free of the electrically conductive deposit 7. The assemblies 4 would also prevent the deposit 7 of materials from becoming generally continuous during processing (e.g., metal etching) of the semiconductor wafer 13 in the high density plasma 104. --

Please replace the table at page 48, lines 7 - 12, with the following rewritten table:

TABLE DOME TEMPERATURE EFFECT

Dome Temperature	Impedance MagDPhase	XPS	XRD	EDS Pt/Cl Ratio	Deposition Thickness
80°C	1800 ohm D-420	$PtCl_2$	Pt, $PtCl_2$, PtO_2	0.8	Thick
150°C	480 ohm D-90	Pt, $PtCl_2$, PtO_2	Pt, $PtCl_4$, PtO_2	0.9	Very Thin

IN THE CLAIMS:

Please cancel Claims 2, 7, and 18 without prejudice. Please amend the claims as follows.

1. A method of processing a metal layer on a substrate comprising:

a) disposing a substrate in a chamber having a chamber wall which includes a dielectric member which bears pressure loading, wherein an inductive power source is present exterior to said dielectric member of said chamber wall;

b) introducing a processing gas into said chamber;

c) passing processing power through at least a portion of said dielectric member and into said chamber to process a metal layer on said substrate in a plasma generated from said processing gas; and

d) heating a surface of said dielectric member to a temperature which decreases the deposition of power-blocking materials, which are byproducts of said metal layer processing, on a surface of said dielectric member relative to the amount of said power-blocking materials which would accumulate without said heating.

3. The method of Claim 1 wherein said power-blocking materials include materials having a conductivity which increases as the thickness of the deposit decreases.

4. The method of Claim 2 wherein said power-blocking materials include materials having a conductivity which increases as the temperature of the dielectric member increases.

5. The method of Claim 1 wherein said power-blocking materials comprise electrically conductive elements.

6. The method of Claim 2 wherein said power-blocking materials comprise electrically conductive elements.

8. The method of Claim 2 wherein said temperature is greater than about 150°C.

9. The method of Claim 4 wherein said temperature is greater than about 225°C.

10. The method of Claim 1 wherein said power-blocking materials comprise an element selected from the group consisting of platinum, copper, aluminum, titanium, ruthenium, iridium and mixtures thereof.

11. The method of Claim 1 wherein said substrate including said metal layer comprises a semiconductor wafer.

12. The method of Claim 1 wherein said dielectric member includes a generally dome-shaped structure.

13. The method of Claim 12 wherein said processing power is selected from the group consisting of RF power, microwave power, and combinations thereof.

14. The method of Claim 1 wherein said chamber includes an inductively coupled RF power source which is used to generate a plasma of the processing gas.

15. The method of Claim 1 wherein said processing of said metal layer on said substrate is selected from the group consisting of etching said metal layer and depositing said metal layer.

16. The method of Claim 3 wherein said materials which block processing power transmission comprise platinum, and said processing of said metal layer comprises etching a platinum layer.

17. A method for decreasing the amount of deposition of semiconductor processing byproduct materials which affect the transmission of processing power through a pressure loaded chamber dielectric member, comprising:

a) providing a chamber having a chamber wall which includes a pressure loaded dielectric member, wherein said chamber contains at least one substrate and a plasma processing gas for processing said at least one substrate;

b) transmitting processing power through said pressure loaded dielectric member and into said processing gas to produce a plasma for processing said substrate; and

c) heating a surface of said dielectric member to a temperature greater than about 150°C to decrease the amount of deposition on the surface of said pressure loaded dielectric member of said semiconductor processing byproduct materials relative to the amount of said semiconductor processing byproduct materials which would accumulate without said heating.

19. The method of Claim 17 wherein said processing power is RF power.

20. The method of Claim 17 wherein said processing power is microwave power.

21. The method of Claim 17 wherein said semiconductor processing byproduct materials comprise an element selected from the group consisting of platinum, copper, aluminum,, titanium, ruthenium, iridium and mixtures thereof.

22. The method of Claim 21 wherein said deposit exhibits a conductivity which increases as the thickness of the deposit decreases when the temperature of the surface of said dielectric member increases.

23. The method of Claim 17 wherein said processing of said substrate comprises processing a metal layer on the substrate.

24. The method of Claim 23 wherein said substrate comprises a semiconductor wafer.

25. The method of Claim 17 wherein said pressure loaded dielectric member includes a generally dome-shaped structure.

26. The method of Claim 25 wherein said processing power is selected from the group consisting of RF power, microwave power, and combinations thereof.

27. The method of Claim 17 wherein said chamber includes an inductively coupled RF power source which is used to generate a plasma of said processing gas.

28. The method of Claim 23 wherein said processing of said metal layer is selected from the group consisting of etching said metal layer and depositing said metal layer.

29. The method of Claim 23 wherein said metal layer comprises platinum, and said processing of said metal layer comprises etching.

30. A method of etching a platinum layer disposed on a substrate comprising:

a) disposing a substrate in a chamber having a chamber wall which includes a pressure loaded dielectric member and which contains a processing gas; and

b) heating an interior surface of said pressure loaded dielectric member to a temperature to decrease the amount of platinum by-products deposited on the interior surface of said pressure loaded dielectric member during plasma etching of said platinum layer relative to the amount of said platinum by-products which would accumulate without said heating.

31. The method of Claim 30 wherein generation of said plasma comprises transmitting processing power through said dielectric member and into said plasma processing gas.

32. The method of Claim 30 wherein said temperature is greater than about 150°C.

33. The method of Claim 31 wherein said temperature is greater than about 150°C.

34. The method of Claim 30 wherein said platinum by-products are electrically conductive.

35. The method of Claim 33 wherein said platinum by-products are electrically conductive.

36. The method of Claim 30 wherein said platinum by-products are capable of forming a deposit having a conductivity which increases as the thickness of the deposit decreases.

37. The method of Claim 35 wherein said platinum by-products are capable of forming a deposit having a conductivity which increases as the thickness of the deposit decreases when the temperature of the interior surface of the dielectric member increases.

38. The method of Claim 30 wherein said processing gas used to generate said plasma is selected from the group consisting of argon, oxygen, chlorine and mixtures thereof.

REMARKS

Enclosed are two sheets of marked-up, amended drawings. In the originally submitted drawings, reference characters 318r and 18r were both used to designate the residual mask layer in Figure 32, and reference characters 316s and 16s were both used to designate the Pt sidewall in Figures 32 and 34. In the amended drawings, Figure 32 has been corrected so that only reference characters 318r and 316s have been used to designate the residual mask layer and Pt sidewall, respectively. Figure 34 has been similarly corrected. Also enclosed are 31 sheets of proposed formal drawings to replace the originally filed informal drawings.

The specification has been amended, as set forth above, for the purpose of correcting various typographical errors and informalities present within the originally filed specification.

The claims have been amended in general for purposes of clarification, with excess verbiage being removed and a more accurate description of the relationship between the claim elements being provided.

In an Advisory Action mailed June 18, 2001, in the parent application (Serial No. 09/124,291), Examiner Olsen stated that "... claim 1 recites 'reducing the deposition...' and the preamble of claim 17 recites 'reducing a deposit' but it is not clear what is to be used as the basis for comparison in determining that the amount of deposit is actually reduced. In fact, phrases such as, reducing the deposits, can be interpreted in a number of different ways. To some, this phrase might suggest that a chemical reaction has brought about the lowering of the oxidation state of the material comprising the deposit, in addition, the phrase 'reducing a deposit of materials...' could suggest that the claims include a chamber cleaning method." It is applicants' opinion that no one skilled in the art to which the invention belongs would interpret the phrase "reducing the deposition" or "reducing a deposit" to mean that the oxidation state of the material comprising the deposit has been lowered, since no mention of the oxidation state of the depositing materials is found anywhere within applicants' originally filed specification. Further, there is nothing in applicants' specification that would lead

one skilled in the art to believe that the claimed invention includes a chamber cleaning method. The Examiner is reminded that the claims are to be interpreted in light of the specification. In any case, independent Claims 1 and 17 have been amended to recite that the deposition of power-blocking materials is decreased relative to the amount of power-blocking materials which would accumulate if the surface of the dielectric member were not heated.

The amendments to the claims set forth above are fully supported by the specification, claim set, and drawings, as originally filed.

Applicants would like to mention that the amendments to the claims set forth above were made solely for the purpose of expediting allowance of the present application. The amendments should not be construed as agreement with or acquiescence to the Examiner's grounds for rejection of claims in the parent application.

Applicants believe that the presently pending claims as amended are in condition for allowance, and the Examiner is respectfully requested to enter the present amendments and to pass the application to allowance.

The Examiner is invited to contact applicants' attorney with any questions or suggestions, at the telephone number provided below.

Respectfully Submitted,

Shirley L. Church

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PRELIMINARY AMENDMENT "A"
VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

The paragraph at page 1, lines 9 - 11, has been amended as follows.

This application is a continuation of Application Serial No. 09/124,291, filed July 29, 1998, which is currently pending, which is a continuation-in-part [application of copending application entitled "An Apparatus and Method for Allowing a Stable Power Transmission into a Plasma Processing Chamber" having] of Application Serial No. 08/920,283 , [and] filed August 26, 1997 , which is abandoned.

The paragraph at page 19, line 26, through page 20, line 8, has been amended as follows.

The liner assembly 11 and assembly 4 including the brace members 9 and the deposition support members 8 may be manufactured from any suitable material, such as metal, plastic, electrically non-conductive materials, etc. Preferably, the liner assembly 11 and brace members 9 comprise any substance or material that has an extremely low dielectric constant or low thermal conductivity, or both. The liner assembly 11 and brace members 9 are preferably essentially non-conductive and may consist of a wide variety of solid types of non-conductive material such as porcelains, glass, mica, magnesia, alumina, aluminum silicate, various high polymers (e.g., epoxies, polyethylene, polystyrene, PVC, phenolics, etc.) , [cullulosic] cellulosic materials, cellular rubber, nylon, and silicon resins. These low dielectric constant materials may be used alone or in combination with other insulators. The deposition support members 8 are preferably manufactured form a semiconductive material or an electrically conductive material. Suitable semiconductive materials include germanium, silicon, silicon carbide, and selenium, etc., with resistivities in the range of 10^{-2} to 10^{9} ohms/cm. Suitable electrically conductive materials include metals (e.g., aluminum, copper, platinu, etc.) and alloys, carbon and graphite, etc.

The paragraph at page 25, line 19, through page 26, line 32, has been amended as follows.

A preferred inductively coupled plasma reactor for employing a plurality of the assemblies 4 of the present invention is that which inductively couples a plasma in a decoupled plasma source etch chamber sold under the trademark DPS™ owned by Applied Materials, Inc., 3050 Bowers Avenue, Santa Clara, California 95054-3299. The DPS™ brand etch [chambers] <u>chamber</u> decouples or separates the ion flux to the semiconductor wafer 13 form the ion acceleration energy and may be any of the DPS™ brand etch chambers of the inductively coupled plasma reactors disclosed in [co-pending] U.S. Patent [application Serial No. 08/389,889 filed February 15, 1995] <u>No. 5,753,044</u>, entitled "RF PLASMA REACTOR WITH HYBRID CONDUCTOR AND MULTI-RADIUS DOME CEILING" and assigned to the present assignee and fully incorporated herein by reference thereto as if repeated verbatim immediately hereinafter. Referring now to Figs. 12 and 13 for two (2) embodiments of an inductively coupled plasma reactor, generally illustrated as 100, having a reactor chamber, generally illustrated as 102, wherein a high density plasma of neutral (n) particles, positive (+) particles, and negative (-) particles are found. The reactor chamber 102 has a grounded conductive cylindrical sidewall 108 and a dielectric ceiling or window 110. A plurality of the assemblies 4 of the present invention may be secured to an inside surface of the dielectric ceiling 110 as best shown in Fig. 14. The inductively coupled RF plasma reactor 100 further comprises a wafer pedestal 114 for supporting the (semiconductor) wafer 13 in the center of the chamber 102, a cylindrical inductor coil 120 surrounding an upper portion of the chamber 102 beginning near the plane of the top of the wafer 13 or wafer pedestal 114 and extending upwardly therefrom toward the top of the chamber 102, an etching gas source 124 and gas inlet 128 for furnishing an etching gas into the interior of the chamber 102, and a pump 132 for controlling the pressure in the chamber 102. The coil inductor 120 is energized by a plasma source power supply or RF generator 136 through a conventional active RF match network 140, the top winding of the coil inductor 120 being "hot" and the bottom winding being grounded. The wafer pedestal 114 includes an interior conductive

portion 144 connected to the bias RF power supply or generator 148 and an exterior grounded conductor 152 (insulated from the interior conductive portion 144). Thus, the plasma source power applied to the coil inductor 120 by the RF generator 136 and the DC bias RF power applied to the wafer pedestal 114 by generator 148 are separately controlled RF supplies. Separating the bias and source power supplies facilitates independent control of ion density and ion energy, in accordance with well-known techniques. To produce high density plasma 104 as an inductively coupled plasma, the coil inductor 120 is adjacent to the chamber 102 and is connected to the RF source power supply or the RF generator 136. The coil inductor 120 provides the RF power through the dielectric ceiling or window 110 which ignites and sustains the high ion density of the high density plasma 104. The geometry of the coil inductor 120 can in large part determine spatial distribution of the plasma ion density of the high density plasma 104 within the reactor chamber 102. The assemblies 4 allow stable power transmission to pass through the dielectric ceiling 110 and into the chamber 102 since the assemblies 4 would receive the deposit 7 of material and keep the inside surface of the dielectric ceiling 110 free of the electrically conductive deposit 7. The assemblies 4 would also prevent the deposit 7 of materials from becoming generally continuous during processing (e.g., metal etching) of the semiconductor wafer 13 in the high density plasma 104.

The table at page 48, lines 7 - 12, has been amended as follows.

TABLE DOME TEMPERATURE EFFECT

Dome Temperature	Impedance MagDPhase	XPS	XRD	EDS Pt/Cl Ratio	Deposition Thickness
80°C	1800 ohm D-420	[PtC12] $PtCl_2$	Pt, [PtC12] $PtCl_2$, [PtO2] PtO_2	0.8	Thick
150°C	480 ohm D-90	Pt, [PtC12] $PtCl_2$, [PtO2] PtO_2	Pt, [PtC14] $PtCl_4$, [Pt02] PtO_2	0.9	Very Thin

IN THE CLAIMS:

Claims 2, 7, and 18 have been cancelled without prejudice.

Claims 1 - 6, 10, 13 - 17. 19 - 22, 23, 25 - 27, 29 - 38 have been amended as follows.

1. (Once Amended) A method of processing a metal layer on a substrate comprising [the steps of]:

a) [providing a substrate;

b)] disposing [said] a substrate in a chamber [including] having a chamber wall [and] which includes a dielectric member [supported by the] which bears pressure loading, wherein an inductive power source is present exterior to said dielectric member of said chamber wall;

[c)] b) introducing a processing gas into said chamber [of step (b)] ;

[d)] c) passing processing power through [the] at least a portion of said dielectric member and into [the] said chamber [of step (b) for processing] to process a metal layer on [the] said substrate in a plasma [of the] generated from said processing gas [and to produce processing power-blocking materials which are capable of depositing on the dielectric member and reducing the

efficiency of processing power passing through the dielectric member and into the plasma within the chamber] ; and

[e)] d) [essentially preventing the processing] heating a surface of said dielectric member to a temperature which decreases the deposition of power-blocking materials [from depositing on the] , which are byproducts of said metal layer processing, on a surface of said dielectric member relative to the amount of said power-blocking materials which would accumulate without said heating.

3. (Once Amended) The method of Claim 1 wherein said [processing] power-blocking materials include [a capability of forming on a surface of the dielectric member a deposit whose] materials having a conductivity which increases as the thickness of the deposit decreases.

4. (Once Amended) The method of Claim 2 wherein said [processing] power-blocking materials include [a capability of forming on a surface of the dielectric member a deposit whose] materials having a conductivity which increases [when] as the temperature of the dielectric member increases.

5. (Once Amended) The method of Claim 1 wherein said [processing] power-blocking materials comprise electrically conductive [products] elements.

6. (Once Amended) The method of Claim 2 wherein said [processing] power-blocking materials comprise electrically conductive [products] elements.

10. (Once Amended) The method of Claim 1 wherein said [processing] power-blocking [material comprises] materials comprise an element selected from the group consisting of platinum, copper, aluminum, titanium, ruthenium, iridium and mixtures thereof.

13. (Once Amended) The method of Claim 12 wherein said processing power is selected from the group consisting of RF power, [magnetron power,] microwave power, and [mixtures] combinations thereof.

14. (Once Amended) The method of Claim 1 wherein said chamber includes an inductively coupled RF power source which is used to generate a plasma of the processing gas.

15. (Once Amended) The method of Claim 1 wherein said processing of said metal layer on [the] said substrate is selected from the group consisting of etching said metal layer and depositing said metal layer.

16. (Once Amended) The method of Claim 3 wherein said [processing] power-blocking materials comprise platinum, and said processing of said metal layer comprises etching a platinum layer.

17. (Once Amended) A method for [preventing a deposit] decreasing the amount of deposition of semiconductor processing byproduct materials [whose conductive increases as the thickness of the deposit decreases] which affect the transmission of processing power through a pressure loaded chamber dielectric member, comprising:

a) providing a chamber [including] having a chamber wall [supporting a] which includes a pressure loaded dielectric member , [and containing] wherein said chamber contains at least one substrate and a plasma processing gas for processing said at least one substrate;

b) [introducing] transmitting processing power through [a] said pressure loaded dielectric member and into [the chamber for processing the substrate and producing materials which are capable of forming a deposit on a surface of the dielectric member wherein the deposit would include

a conductivity which increases as the thickness of the deposit decreases] said processing gas to produce a plasma for processing said substrate ; and

c) heating [the] a surface of [the] said dielectric member to a temperature greater than about 150°C to [essentially prevent the produced materials from depositing on the surface of the] decrease the amount of deposition on the surface of said pressure loaded dielectric member of said semiconductor processing byproduct materials relative to the amount of said semiconductor processing byproduct materials which would accumulate without said heating.

19. (Once Amended) The method of Claim 17 wherein said processing power is [selected from the group consisting of] RF power [, magnetron power, and mixtures thereof].

20. (Once Amended) The method of Claim 17 wherein said processing power is [selected from the group consisting of] microwave power [, magnetron power, and mixtures thereof].

21. (Once Amended) The method of Claim 17 wherein said [produced] semiconductor processing byproduct materials comprise an element selected from the group consisting of platinum, copper, aluminum, titanium, ruthenium, iridium and mixtures thereof.

22. (Once Amended) The method of Claim [18] 21 wherein said [produced materials comprise an element selected from the group consisting of platinum, copper, aluminum, titanium, ruthenium, iridium and mixtures thereof and] deposit [would include] exhibits a conductivity which increases as the thickness of the deposit decreases when the temperature of the surface of [the] said dielectric member increases.

23. (Once Amended) The method of Claim 17 wherein said processing of [the] said substrate comprises processing a metal layer on the substrate.

25. (Once Amended) The method of Claim 17 wherein said pressure loaded dielectric member includes a generally dome-shaped structure.

26. (Once Amended) The method of Claim 25 wherein said processing power is selected from the group consisting of RF power, [magnetron power,] microwave power, and [mixtures] combinations thereof.

27. (Once Amended) The method of Claim 17 wherein said chamber includes an inductively coupled RF power source which is used to generate a plasma of [the] said processing gas.

29. (Once Amended) The method of Claim 23 wherein said [processing power-blocking materials comprise] metal layer comprises platinum, and said processing of said metal layer comprises etching [a platinum layer].

30. (Once Amended) A method of etching a platinum layer disposed on a substrate comprising [the steps of]:

a) [providing a substrate supporting a platinum layer;

b)] disposing [the] a substrate [of step (a)] in a chamber [including] having a chamber wall [supporting] which includes a pressure loaded dielectric member and [containing] which contains a processing gas; and

[c)] b) heating an interior surface of [the] said pressure loaded dielectric member to a temperature to [essentially prevent platinum by-products produced from etching the platinum layer

in a plasma of the processing gas from forming a deposit] decrease the amount of platinum by-products deposited on the interior surface of [the] said pressure loaded dielectric member [and reduce the efficiency of processing power passing through the dielectric member and into the plasma of the processing gas; and

d)] during plasma etching [the] of said platinum layer [in a plasma of the processing gas to produce an etched platinum layer and said platinum by-products of step (c) without any] relative to the amount of said platinum by-products [forming a deposit on the interior surface of the dielectric member] which would accumulate without said heating.

31. (Once Amended) The method of Claim 30 wherein [said etching step (d)] generation of said plasma comprises transmitting processing power through [the] said dielectric member and into [the] said plasma processing gas [with essentially no reduction in efficiency of processing power passing through the dielectric member and into the plasma processing gas].

32. (Once Amended) The method of Claim 30 wherein said temperature [of step (c)] is greater than about 150°C.

33. (Once Amended) The method of Claim 31 wherein said temperature [of step (c)] is greater than about 150°C.

34. (Once Amended) The method of Claim 30 wherein said platinum by-products [of step (d) comprise] are electrically conductive [products].

35. (Once Amended) The method of Claim 33 wherein said platinum by-products [of step (d) comprise] are electrically conductive [products].

36. (Once Amended) The method of Claim 30 wherein said platinum by-products [of step (d)] are capable of forming a deposit having a conductivity which increases as the thickness of the deposit decreases.

37. (Once Amended) The method of Claim 35 wherein said platinum by-products [of step (d)] are capable of forming a deposit having a conductivity which increases as the thickness of the deposit decreases when the temperature of the interior surface of the dielectric member increases.

38. (Once Amended) The method of Claim 30 wherein said processing gas [of] used to generate said plasma [of step (d)] is selected from the group consisting of argon, oxygen, chlorine and mixtures thereof.

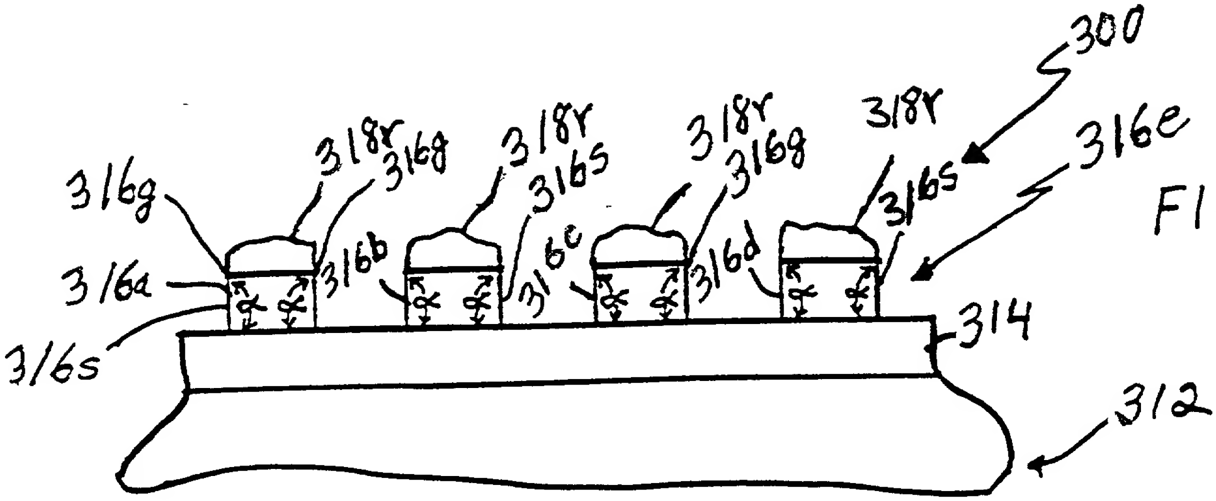
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FIG. 32

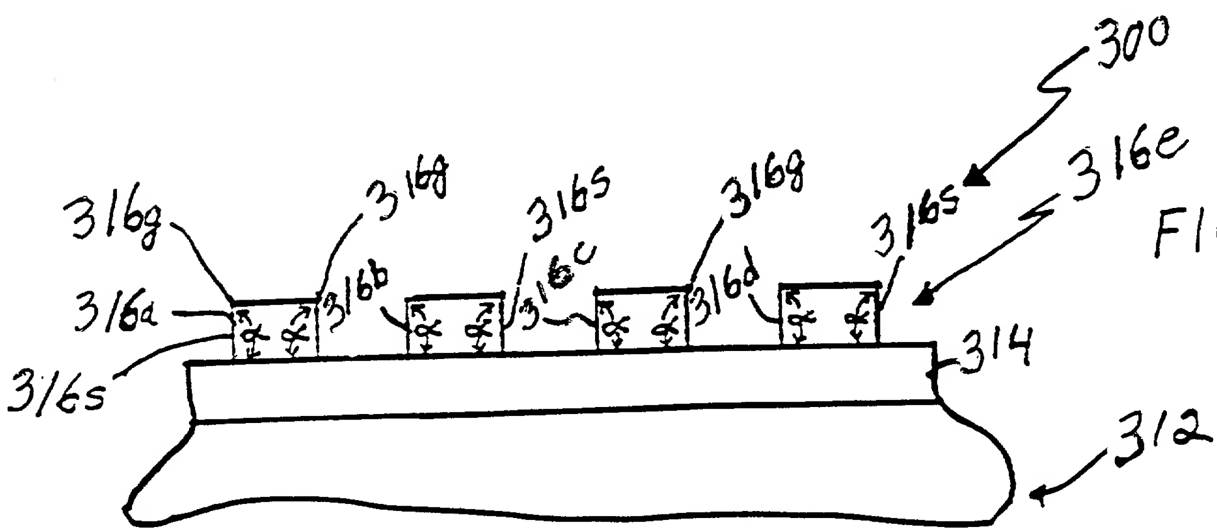
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FIG 33

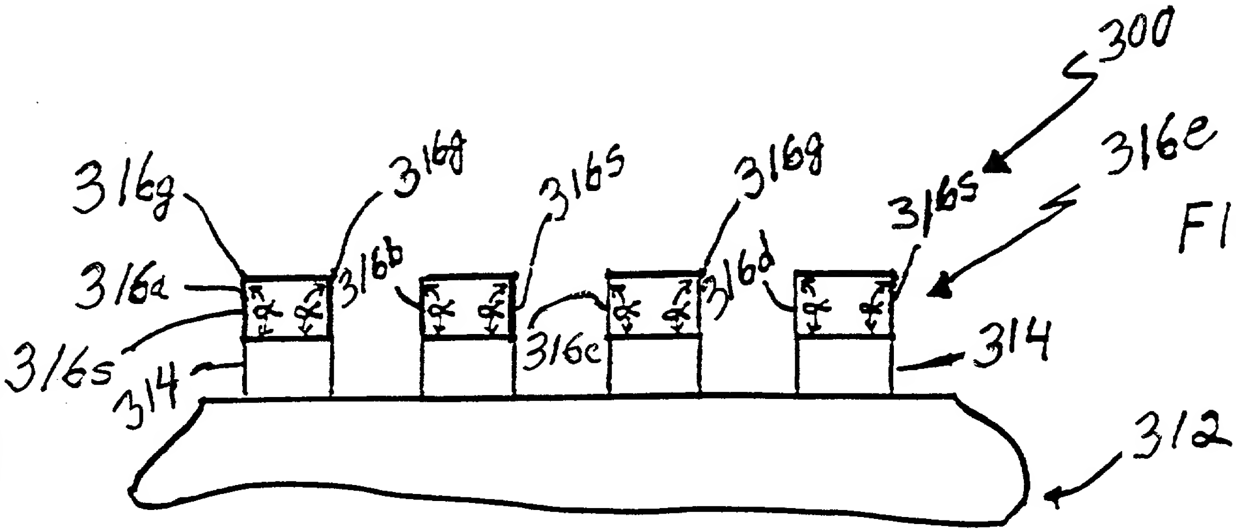
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FIG. 34